DOCUMENT RESUME

ED 469 260 CE 083 884

AUTHOR	Gates, Janet L.
TITLE	Women's Career Influences in Traditional and Nontraditional Fields.
PUB DATE	2002-04-00
NOTE	13p.; Poster presented at the Biennial Meeting of the Society for Research in Adolescence (9th, New Orleans, LA, April 11-14, 2002).
PUB TYPE	Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE	EDRS Price MF01/PC01 Plus Postage.
DESCRIPTORS	*Career Choice; Career Education; Educational Research; *Engineers; Fathers; *Females; Higher Education; Males; *Mathematics Teachers; Mothers; *Nontraditional Occupations; Occupational Aspiration; Occupational Segregation; Parent Influence; *Role Models; Science Careers; Significant Others; Teacher Education; Teacher Influence; Womens Education

ABSTRACT

A study examined the types of role models who influence career choice in young women planning traditional (education) careers in math- and science-related fields or nontraditional (engineering) careers. The hypothesis was that nontraditional women would be more likely to cite the influence of male role models or influences on career selection than women planning to enter traditional fields. The Career Values Questionnaire, developed for the study, was completed by 150 female students enrolled in either a post-baccalaureate teacher certification program, master's in teaching program in math/science, or a junior, senior, or graduate level engineering program at a large, urban research university. Findings indicated nontraditional women were more likely to cite male role models as influencing their career choice; women following a traditional career path identified teachers and professors as most influential; and both traditional and nontraditional women cited their mothers as having influenced their choice of career, but nontraditional women were more likely to mention their fathers as a career influence. (Contains 14 references and 2 tables.) (YLB)

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ED 469 260

Women's Career Influences in Traditional and Nontraditional Fields

Janet L. Gates

La Roche College
Department of Psychology

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WOMEN'S CAREER INFLUENCES IN TRADITIONAL AND NONTRADITIONAL FIELDS

Abstract

Despite the increasing number of women entering the work force, gender segregation exists within many occupations. The current study investigated career influences on women who were entering either traditional (education) fields of study in math and science, or nontraditional (engineering) occupations. Results suggested that nontraditional women were more likely to cite male role models as influencing their career choice; women following a traditional career path identified teachers and professors as most influential. Both traditional and nontraditional women cited their mothers as having influenced their choice of career, but nontraditional women were more likely to mention their fathers as a career influence.

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Introduction

One of the most significant social changes in the past century is the restructuring of the American work force. Women have entered into paid employment in ever-increasing numbers, and today, women comprise about 46.6 percent of wage earners (BLS, 2002).

Despite the increase in women's participation in the labor force, gender segregation exists in many occupations (Jacobs, 1999). Women are under-represented

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Poster presented at the Biennial Meeting of the Society for Research in Adolescence, New Orleans, LA, April, 2002. Address correspondence to Janet L. Gates, Department of Psychology, La Roche College, 9300 Babcock Boulevard, Pittsburgh, PA 15237.

in careers demanding expertise in math and science, (e.g., engineering), while over-represented in traditional fields (e.g., education). According to the US Bureau of Labor Statistics (2002), of the 1,979,000 engineers employed in the United States, approximately 90 percent are male. In comparison, of the 4,421,000 non-college or university teachers in the United States, approximately 73 percent are women.

One interpretation of these gender differences in occupational choice is that females are less likely to consider alternative careers, and have fewer role models for success in nontraditional occupations. Parents are an important influence on whether adolescents attend college and what occupations they consider (Sebald, 1986). Some researchers (e.g., Eccles & Hoffman, 1984; Gecas & Seff, 1990) suggest that adolescents are particularly influenced in the choice of career by same-sex parents. With relatively few women in nontraditional fields, mothers tend to model more traditional career choices for their daughters. The importance of role models to women who select engineering as a career has been noted by Wolcott (2001), who states that many women majoring in engineering in college cite the influence of a male family member or family friend as a career influence. Fathers' influence was found to be a powerful determinant for women selecting careers in the engineering field (Fitzpatrick & Silverman, 1989), and in business (Hoffman, Hofacker, & Goldsmith, 1992).

Another important influence in career choice is the educator who recognizes a student's talent and encourages her to consider a particular area of study. Some evidence suggests that females who choose nontraditional careers are influenced by positive relationships with teachers who help to shape their occupational decisions (Reis and Callahan, 1989). In contrast, Fitzpatrick and Silverman (1989) reported that female engineering and science majors reported neutral influences of college professors to their career choice, whereas women planning traditional careers expressed positive teacher influences.

The purpose of this study was to examine the types of role models who influence career choice in young women planning traditional (education) and nontraditional (engineering) careers in math and science-related fields. It was hypothesized that nontraditional women would be more likely to cite the influence of male role models or male influences on career selection than women planning to enter traditional fields.

Method

Participants

Two hundred twenty-four female students enrolled in either a post-baccalaureate teacher-certification program, a master's in teaching program in math/science or a junior, senior, or graduate level engineering program at a large, urban research university

Procedure

Copies of the Career Values Questionnaire, developed for this study, were mailed to the subjects. Subjects were asked to respond to the question, "Who influenced you in your career choice? and to indicate the two most important influences. They were asked if their career choices reflected the influence of a role model, and if they answered affirmatively, they indicated their relationship (e.g., mother, father, female relative, male relative, other).

Results

The survey return rate was 76.34% (n = 171). Failure to meet study criteria resulted in 21 surveys being eliminated, resulting in 150 completed surveys from 70 math/science education and 80 engineering majors. There were no significant differences in undergraduate grade point averages for the two groups. The mean ages (years) were 25.34 and 28.52 for the engineer and educator groups, respectively ($p < .05$).

Respondents were asked to indicate the individuals who helped to influence the subject in her selection of a career. As indicated in Table 1, twenty-six percent of the educators reported the major influence on their career choice as teachers and professors, followed by self-selection (24.4%) and mothers (18.1%). The most influential group for engineers was self-selection (25.2%) followed by fathers (20.1%) and mothers (19.4%).

Insert Table 1 about here

When asked if they had been influenced in their career choice by a role model, defined as a person whom one admires in the same occupation, only 54 (36.5%) of the sample answered affirmatively (see Table 2). Among this small group, educators were significantly more likely than engineers to report the influence of a role model ($\chi^2(2)$=12.80; p. < .001). There were significant differences between the groups in the relationship between the subject and the role model: 77.8% of the engineers indicated a parent as a role model, while only 30.6% of the educators indicated a parental role model (($\chi^2(3)$=15.85; p. < .001)

Insert Table 2 about here

Discussion

These results suggest that parents can positively influence their daughters' consideration of nontraditional careers, as well as supporting more traditional choices. Interestingly, in this study, mothers were almost as influential as fathers in their

daughters' choice of engineering as a career, indicating that parental support and influence remain highly important among women entering nontraditional careers. This finding is in keeping with previous research (see Chusmir, 1983, for a review).

As hypothesized, nontraditional women were more likely to cite the influence of male role models than were those preparing for traditional careers in teaching. However, the relative paucity of role models for both educators and engineers highlights an important issue in supporting career exploration among adolescents. Arenofsky (1998) cites the importance of finding a role model to inspire a young person and encourage him or her to set high goals. In her qualitative study of women engineers, Evetts (1993) pointed out that several of her subjects would not have known about engineering as a potential career without the advice and support of particular role models who had worked in the engineering field and transmitted their enthusiasm to her subjects. Wolcott (2001) identifies several regional programs designed to provide young girls with an exposure to engineering as a potential career by sending women engineers into elementary and secondary schools to conduct experiments and create interest in math and science for females. Educators, too, can show positive effects from exposure to role models. Place (1997) suggests that African-American students who choose education as a major are more likely than non-education majors to identify the existence of a role model who positively influenced their career choice.

It is of interest to note that relatively few of the nontraditional subjects in this study reported teachers, professors, or school counselors as having influenced their career choice. Indeed, Wolcott (2001) suggests that teachers are more likely to steer male students to an engineering career, because they perceive the field as more in keeping with male interests. Evetts (1993) reported that some of her subjects encountered school officials who actively discouraged them from considering a career in engineering. On the other hand, teachers and professors were most influential in career

selection among traditional women, demonstrating the important role that school personnel can play in supporting career choice in students.

Educators may want to consider ways in which they can expose promising young women with ability in math and science to a wider array of possible career paths, and to encourage and support their educational aspirations. Exposure to successful female role models in nontraditional careers can assist adolescent women in a consideration of occupations that complement their particular gifts and abilities (Schroeder, Blood, & Maluso, 1993).

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Table 1

Persons Indicated as Main or Secondary Influence on Career Choice of Subjects

	Educators		Engineers	
	n	%	n	%
Self-chosen	31	24.4	35	25.2
Mother	23	18.1	27	19.4
Father	14	11.0	28	20.1
Female Relative	2	1.6	6	4.3
Male Relative	3	2.4	3	2.2
Friend	6	4.7	8	5.8
Teacher/Professor	33	26.0	16	11.5
School Counselor	0	0.0	4	2.9
Other	15	11.8	12	8.6
TOTAL	***127***	***100.0***	***139***	***100.0***

Table 2

Individual Identified as Role Model among those Subjects Reporting the Influence of Role Models

	Educators		Engineers		
	n	%	n	%	χ^2
Mother or other female relative	6	16.7	2	11.1	15.85***
Father or other male relative	5	13.9	12	66.7	
Other	25	69.4	4	22.2	
TOTAL	36	100.0	18	100.0	12.80***

***$p < .001$

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Organization/Address: La Roche College, Pittsburgh, PA 15237	Telephone: 412.536.1797 FAX: 412 536 1179
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